

DIRECT TESTIMONY OF

DANIEL F. KASSIS, P.E.

ON BEHALF OF

DOMINION ENERGY SOUTH CAROLINA, INC.

DOCKET NO. 2020-229-E

1 **Q. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND**
2 **OCCUPATION.**

3 A. My name is Daniel (“Danny”) F. Kassis. My business address is 2392 West
4 Aviation Avenue, North Charleston, South Carolina 29406. As Vice President of
5 Customer Relations and Renewables, my responsibilities include developing
6 Dominion Energy South Carolina, Inc.’s (“DESC”) strategy for deploying and
7 utilizing renewable assets consistent with state policy in the most efficient and
8 beneficial manner to DESC’s customers. I am also responsible for negotiating and
9 approving renewable energy contracts for DESC. I have the approval authority for
10 DESC and have signed all of the contracts for DESC under the Distributed Energy
11 Resources Act, as well as numerous renewable resource power purchase
12 agreements. I was an active participant in the development of all of the renewable
13 energy programs that DESC has filed beginning with the Distributed Energy
14 Resources Act.
15

1 **Q. BRIEFLY STATE YOUR EDUCATION, BACKGROUND, AND**
2 **EXPERIENCE.**

3 A. In 1984, while still a student, I began working for DESC, then South Carolina
4 Electric & Gas Company (“SCE&G”), as an Engineering Student Assistant.¹ In
5 1986, I received a Bachelor of Science degree in Mechanical Engineering from
6 Clemson University, and I am licensed in South Carolina as a Professional
7 Engineer. Upon graduation, I began working at the Charleston Naval Shipyard in
8 the navy’s nuclear submarine program. In 1987, I rejoined SCE&G and served in
9 various roles in the Gas Department, eventually becoming the Manager of the
10 Charleston Division. In 1998, I was named as the District Manager for the Electric
11 Department in the Charleston District. In 2004, I was promoted to the position of
12 General Manager of Electric Service Coordination. In this position, I coordinated
13 all of the areas that supported the retail electric operations for SCE&G. In 2013, I
14 was promoted to the position of Vice President of Customer Service, and I became
15 the Vice President of Customer Relations and Renewables in 2014 with the addition
16 of renewable energy programs and energy efficiency programs under my
17 responsibility.

18
19 **Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC SERVICE**
20 **COMMISSION OF SOUTH CAROLINA (THE “COMMISSION”)?**

¹ In April of 2019, SCE&G changed its name to DESC.

1 A. Yes, I previously appeared before the Commission and testified in Docket No.
2 2019-184-E—DESC’s avoided cost docket—and I also provided written testimony
3 regarding DESC’s storage tariff in Docket No. 2019-393-E.
4

5 **Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?**

6 A. The purpose of my direct testimony is to describe how DESC developed the
7 solar choice metering tariffs (the “Solar Choice Tariffs”) proposed in this docket.
8 Specifically, I will explain (i) how Docket No. 2019-182-E (the “Generic Docket”)²
9 provided useful insight and stakeholder feedback that went into the development
10 of the Solar Choice Tariffs and (ii) how the Solar Choice Tariffs align with the
11 overarching principles within Act 62.
12

13 **Q. ARE YOU PROVIDING ANY EXHIBITS WITH YOUR DIRECT**
14 **TESTIMONY?**

15 A. Yes. I am providing the methodology utilized under the existing net energy
16 metering programs as Exhibit No. __ (DFK-1).
17

18 **Q. PLEASE PROVIDE AN OVERVIEW OF DESC’S COMMITMENT TO**
19 **RENEWABLE ENERGY.**

² The hearing in the Generic Docket concluded on November 19, 2020, but no order has been issued in the docket.

1 A. First, let me address the success of DESC's current NEM programs.
2 Currently, DESC has approximately 11,200 customers that take service under an
3 NEM tariff. These customers collectively represent a capacity of approximately 90
4 MW to DESC. Also, there are approximately 7 MW of additional approved NEM
5 applications in process as of the filing date of this testimony. When you examine
6 these numbers, particularly relative to DESC's size, it is apparent that the customer-
7 generation market is well-established within the DESC service territory. While the
8 current program successfully established the customer-generation market in the
9 DESC service territory, the legislature signaled through Act 62 that it is time to
10 reform NEM offerings and plan for a new Solar Choice Program that better aligns
11 benefits with cost of service and addresses important changes in the industry as a
12 whole.

13 Second, DESC has a solid track record with regard to renewable generation
14 outside of the NEM context. For example, DESC's parent company, Dominion
15 Energy, Inc., announced earlier this year that it intends to achieve net-zero emissions
16 by 2050—one of the boldest commitments yet in the energy sector. Likewise, DESC
17 has received numerous awards recognizing its specific commitment to renewable
18 energy. Today, DESC has 991.2 MW of solar photovoltaic generation systems
19 comprised of residential, commercial, utility scale and community solar. DESC has
20 an additional 794 MW of environmentally-friendly hydro-generating stations
21 including 576 MW of pumped storage. Finally, the Dominion Energy Innovation

1 Center houses the Duke Energy eGRID, an electrical grid simulator, and the world's
2 most-advanced wind-turbine drivetrain testing facility. The two labs allow for
3 important research to develop solutions to the challenges resulting from the
4 additional adoption of variable energy resources and to approximate the level of
5 response required to mitigate the impact of renewables to the electrical system.

6 While DESC's current NEM programs were successful in establishing
7 rooftop solar, there is also a significant amount of utility-scale (i.e., non-rooftop)
8 solar on the DESC system. For example, in the summer of 2019, the nameplate
9 capacity of utility-scale solar generation on the DESC system was approximately
10 485 MW. For the summer of 2020, the nameplate capacity of utility-scale solar
11 generation on the DESC system exceeded 849 MW—an approximately 75%
12 increase year-over-year—with utility-scale solar generation capacity expected to
13 exceed 1,000 MW in the near future. In total, there are approximately 4,215 MW of
14 additional application for solar projects pending in DESC's state and federal queue.
15 DESC's highest recorded daytime system load was 4,970 MW on February 20,
16 2015, while DESC's average daily peak load is less than 3,300 MW. To put this into
17 perspective, DESC recently ranked first in the state for the amount of distributed
18 solar on its system. Finally, DESC ranks second—among the 13 largest utilities in
19 the Southeast—with 807 solar watts per customer, which is 2.5 times the average
20 for the region.
21

GENERIC DOCKET

Q. PLEASE BRIEFLY DESCRIBE THE PURPOSE OF THE GENERIC DOCKET.

A. The Generic Docket is a creature of Act 62. Specifically, it was established by the Commission pursuant to S.C. Code Ann. § 58-40-20(C), which requires the Commission to:

- (1) investigate and determine the costs and benefits of the current net energy metering program; and
- (2) establish a methodology for calculating the value of the energy produced by customer-generators.

The Generic Docket required a critical examination, through a contested proceeding, of DESC’s current NEM programs (the “Current NEM Programs”) and corresponding methodology such that the Commission and the various parties could gather “lessons learned” from the Current NEM Programs to leverage when developing Act 62’s next generation of NEM—the Solar Choice Program. The analysis presented in the contested Generic Docket is important because Act 62 contains new mandates related to NEM that were not previously required in South Carolina—such as eliminating cost-shift and subsidization “to the greatest extent practicable”³ and a consideration of “time-variant rate schedules.”⁴ The analyses in the Generic Docket provide a toolset with which to address these new mandates.

³ S.C. Code Ann. § 58-40-20(G)(1).

⁴ S.C. Code Ann. § 58-40-20(F)(3)(b).

1 **Q. VARIOUS INTERVENORS IN THE GENERIC DOCKET PROVIDED**
2 **TESTIMONY REGARDING THEIR IDEAL TARIFF STRUCTURES. DID**
3 **THE TESTIMONY PRESENTED IN THE GENERIC DOCKET**
4 **INFLUENCE DESC'S DEVELOPMENT OF THE SOLAR CHOICE**
5 **TARIFFS?**

6 A. Yes. The Generic Docket did influence the development of the Solar Choice
7 Tariffs because DESC had the benefit of hearing interested parties provide
8 comprehensive testimony and engage in rigorous debate during a three-day hearing.
9 Intervenor in the Generic Docket represented a broad range of interests—from
10 environmental advocates to solar developers to the Office of Regulatory Staff—and
11 those parties testified to the costs and benefits of the Current NEM Programs,
12 perceived best-practices, and ideal tariff structures. Even with such diverse interests
13 represented, certain common themes arose from these proceedings that DESC
14 leveraged when developing the Solar Choice Tariffs. For example, time-variant
15 rates were acknowledged by various parties as a potential ratemaking tool that could
16 mitigate the cost-shift that exists under Current NEM Programs—an express goal
17 of Act 62. As DESC Witness Everett describes in greater detail, the Solar Choice
18 Tariffs draw upon this principle by utilizing time-variant rates to more closely align
19 rates with the cost to serve NEM customers. Likewise, DESC was aligned with the
20 South Carolina Office of Regulatory Staff's proposed approach for the
21 consideration of a new tariff, which included things like determining customer

1 classes and allocating costs to those classes using cost of service studies and
2 standard cost allocation methodologies. As a result, DESC is hopeful that the parties
3 in this docket will find many of the principles that were favored by the parties in the
4 Generic Docket are now reflected in the Solar Choice Tariffs.

5
6 **Q. DID DESC HOST STAKEHOLDER MEETINGS IN ADDITION TO**
7 **PARTICIPATING IN THE GENERIC DOCKET TO SOLICIT FEEDBACK**
8 **FROM INDUSTRY PARTICIPANTS REGARDING IDEAL TARIFFS IN**
9 **THIS DOCKET?**

10 A. No, although DESC did participate in a stakeholder process, it did not host a
11 separate stakeholder process for this docket. Additionally, as described above,
12 DESC had the benefit of a robust record and comprehensive testimony in the
13 Generic Docket when developing the Solar Choice Tariffs. Finally, DESC also
14 heard directly from some market participants regarding their thoughts on a tariff
15 design. As such, DESC felt that it was adequately informed as to the positions of
16 industry stakeholders and that instituting an additional process to illicit feedback
17 would yield minimal benefit, if any.

18
19 **Q. HOW DO ACT 62'S REQUIREMENTS FOR THIS DOCKET DIFFER**
20 **FROM ACT 62'S REQUIREMENTS FOR THE GENERIC DOCKET?**

1 A. Although these dockets are related, their requirements are quite different. As
2 discussed above, the Generic Docket was established pursuant to S.C. Code Ann. §
3 58-40-20(C) and required the Commission and the various parties to gather
4 information and analyses related to the Current NEM Programs.

5 This docket was established pursuant to a different section of Act 62—S.C.
6 Code Ann. § 58-40-20(F)(1)—and requires the Commission to “establish a ‘solar
7 choice metering tariff’ for customer-generators to go into effect for applications
8 received after May 31, 2021.”⁵ Although the lessons learned in the Generic Docket
9 can be leveraged in this docket to create an Act 62-compliant Solar Choice Program,
10 this docket represents a clear pivot toward the future of NEM in South Carolina and
11 requires the Commission to establish new tariffs and associated methodologies and
12 values that are separate and distinct from the analysis of the Current NEM Programs
13 in the Generic Docket.

14
15 **Q. WHAT WERE DESC’S GOALS IN DEVELOPING THE SOLAR CHOICE**
16 **TARIFFS?**

17 A. First and foremost, DESC developed the Solar Choice Tariffs in accordance
18 with Act 62. However, DESC also must necessarily think about broader, system-
19 wide goals when implementing any new rate structure. DESC is actively planning
20 for a more sustainable and environmentally-friendly future in which it will make

⁵ S.C. Code Ann. § 58-40-20(F)(1).

substantial investments and work collaboratively to add not only renewable generation, but also establish emerging technologies—including battery storage (both as grid assets and generation assets), efficient gas turbines, charging stations for the promotion of electric vehicles, microgrids, smart grids and smart devices, distributed energy resources, and similar technology (collectively, “Emerging Technologies”)—as part of a net-zero emissions future. However, DESC must achieve these goals while maintaining a safe and reliable electric system. These emission goals and DESC’s commitment to renewable energy can only be fulfilled through thoughtfully-engineered system planning, a diverse resource mix on the DESC system, and the deployment of Emerging Technologies. The Solar Choice Tariffs are a valued piece of this effort because they should advance the concept of accurate values with respect to time and grid operation and inform customers and system operators on the various ways to address customer energy needs and renewable goals.

SOLAR CHOICE TARIFFS

Q. WHAT WAS THE GENERAL ASSEMBLY’S INTENT FOR A SUCCESSOR NEM PROGRAM UNDER ACT 62 THAT IT DESIGNATED AS “SOLAR CHOICE”?

A. Act 62 expressly states the General Assembly’s intent:

(A) It is the intent of the General Assembly to:

- (1) build upon the successful deployment of solar generating capacity through Act 236 of 2014 to continue enabling market-driven, private investment in distributed energy resources across the State by reducing regulatory and administrative burdens to customer installation and utilization of onsite distributed energy resources;
- (2) avoid disruption to the growing market for customer-scale distributed energy resources; and
- (3) require the commission to establish solar choice metering requirements that fairly allocate costs and benefits to eliminate any cost shift or subsidization associated with net metering to the greatest extent practicable.

As described below, these items require a thoughtful, deliberate tariff development that takes into account not only NEM customers, but also broader impacts to the overall power system.

Q. WHAT PARAMETERS DID THE GENERAL ASSEMBLY INCLUDE WITHIN ACT 62 TO ALLOW THE FULFILLMENT OF ITS INTENT?

A. The General Assembly provided key Solar Choice parameters throughout Act 62 which served as the primary drivers in the development of the Solar Choice Tariffs in accordance with their stated intent.

First, S.C. Code Ann. § 58-40-20(F)(3) requires the Commission to establish a Solar Choice methodology and corresponding values in this docket that “compensate customer-generators for the benefits provided by their generator to the power system.” Second, S.C. Code Ann. § 58-40-20(G) requires the Solar Choice

1 Tariffs “eliminate any cost shift to the greatest extent practicable” while permitting
2 “solar choice customer-generators to use customer-generated energy behind the
3 meter without penalty.” DESC addresses these requirements with the proposed
4 Solar Choice Tariffs.

5
6 **Q. BY ADDRESSING THESE REQUIREMENTS, DOES DESC ADDRESS**
7 **THE LEGISLATIVE INTENT OF ACT 62?**

8 A. Yes. The specific requirements listed in Act 62 provide the path forward to
9 effectuate the legislative intent. Stated alternatively, as long as the proposed Solar
10 Choice Tariffs meet the express requirements of Act 62, the tariffs, by definition,
11 fulfill the legislative intent. There is no separate analysis or study of the legislative
12 intent.

13
14 **Q. DO DESC’S PROPOSED SOLAR CHOICE TARIFFS APPLY TO BOTH**
15 **RESIDENTIAL AND NON-RESIDENTIAL CUSTOMERS?**

16 A. Yes, the Solar Choice Tariffs address both residential and small general
17 service customers, which comprise a substantial majority of the customers that are
18 billed primarily through a volumetric rate. For our medium and large general service
19 customers, more complex rate designs are in place which appropriately address just
20 and reasonable cost allocation for those classes of customers, and DESC believes
21 that the cost shifts with respect to those customers are minimized due to rate design

1 and ability of those customers to consume much of the energy they could produce
2 through self-generation.

3
4 **Q. DO THE PROPOSED SOLAR CHOICE TARIFFS PERMIT CUSTOMER-**
5 **GENERATORS TO CONSUME ENERGY BEHIND THE METER**
6 **WITHOUT PENALTY IN ACCORDANCE WITH SECTION 58-40-**
7 **20(G)(2)?**

8 A. Yes. In accordance with Act 62, the Solar Choice Tariffs permit customer-
9 generators to offset their energy usage from DESC by consuming the energy they
10 generate on-site. This represents the same offset for self-supplied energy that is
11 provided to customers under the Current NEM Programs, and it ensures that
12 customers are not charged a premium based upon the amount of self-supplied
13 energy they consume.

14
15 **Q. FOR ENERGY EXPORTED TO THE SYSTEM BY CUSTOMER-**
16 **GENERATORS, PLEASE DESCRIBE HOW THE SOLAR CHOICE**
17 **TARIFFS COMPENSATE GENERATORS FOR THE BENEFITS**
18 **PROVIDED BY THEIR GENERATOR TO THE POWER SYSTEM.**

19 A. As described by DESC Witness Everett, the methodology utilized in the
20 Current NEM Programs consists of eleven components (the “Existing
21 Methodology”) and is attached as Exhibit No. __ (DFK-1). The Commission is

1 currently considering whether any changes are warranted to the Existing
2 Methodology in the Generic Docket. However, this docket requires a methodology
3 to be established under the Solar Choice Tariffs (the “Solar Choice Methodology”)
4 going forward. To create the Solar Choice Methodology, DESC Witness Everett
5 utilized the Existing Methodology as a baseline.

6 As for the values to be utilized within the Solar Choice Methodology, as
7 DESC Witness Everett will testify in more detail, the appropriate baseline value
8 for solar exported by NEM customers is the avoided cost rates established by this
9 Commission that DESC pays to qualifying facilities under PURPA. These values
10 were established by the Commission in a contested, litigated proceeding in Docket
11 No. 2020-244. By utilizing these values, DESC crafted a methodology that
12 accurately values the benefits provided to the power system via this solar
13 generation. These values will be updated annually in accordance with Act 62, while
14 the methodology will be revisited every five years.

15
16 **Q. SHOULD DESC VALUE SOLAR ENERGY EXPORTED TO IT FROM AN**
17 **INDIVIDUAL CUSTOMER (AS IN THE CASE OF NEM) DIFFERENTLY**
18 **THAN “MUST TAKE” SOLAR POWER IT RECEIVES UNDER PURPA?**

19 **A.** No, it should not be valued differently. From DESC’s perspective, whether
20 the intermittent solar energy is delivered under solar projects under PURPA or
21 customer-generators under NEM programs, the value to the DESC system is the

1 same. Therefore, the methodology accurately values the exports from customer-
2 generators by pricing it consistent with the rates paid to solar PURPA projects given
3 that the energy provided benefits the DESC system equally in this regard.
4

5 **Q. ARE THE PROPOSED SOLAR CHOICE TARIFFS SUCCESSFUL IN**
6 **ELIMINATING ANY COST-SHIFT TO THE GREATEST EXTENT**
7 **PRACTICABLE ON CUSTOMERS THAT DO NOT HAVE CUSTOMER-**
8 **SITED GENERATION IN ACCORDANCE WITH SECTION 58-40-**
9 **20(G)(1)?**

10 A. Yes. As described in greater detail by DESC Witness Everett, when you
11 analyze the cost shift of the Solar Choice Tariffs, DESC believes that the Solar
12 Choice Tariffs reduce this cost shift in accordance with Act 62.
13

14 **Q. HOW DOES THE ELIMINATION OF SUCH COST-SHIFT IMPACT LOW-**
15 **INCOME CONSUMERS?**

16 A. As ORS Witness Dr. Ruoff testified in the Generic Docket, cost-shift to non-
17 NEM customers as a result of an NEM program disproportionately affects low-
18 income customers given that low-income customers typically do not have rooftop
19 solar. DESC has some existing programs designed for low-income customers and
20 is evaluating more concepts as well. Properly valuing all aspects of customer sited
21 generation becomes an important factor in the creation of new programs that could

1 be complimentary to both the utility and low income customers. Once the cost shifts
2 are addressed, the various stakeholders can use the true values of energy and
3 services to examine smarter utility integration. Despite these efforts, we must be
4 mindful of how low-income customers are impacted by the decisions made in this
5 proceeding.

6 This further supports DESC's proposed rate mechanisms under the Solar
7 Choice Tariffs because they better align and assign the costs to serve those NEM
8 customers. By combining rate mechanisms like TOU rates (which are envisioned
9 by Act 62) with a Subscription Fee and minimum bill, the Solar Choice Tariffs will
10 ensure that those customers with rooftop solar sufficiently account for DESC's cost
11 to serve those customers, rather than shifting those costs to non-NEM customers.
12

13 **Q. DO DESC'S CORPORATE CARBON GOALS AND THE DESIRE TO**
14 **MEET THOSE GOALS JUSTIFY ALTERING THE SOLAR CHOICE**
15 **TARIFFS TO PROVIDE NEM CUSTOMERS WITH BENEFITS IN**
16 **EXCESS OF THE BENEFITS THEY PROVIDE TO THE DESC SYSTEM?**

17 A. No, for several reasons. First, such an adjustment would be in violation of
18 Act 62 given that its clear mandate is to "compensate customer-generators for the
19 benefits provided by their generation to the power system"⁶ while eliminating cost-
20 shift to the "greatest extent practicable."⁷ Artificially inflating the compensation

⁶ S.C. Code Ann. § 58-40-20(F)(3).

⁷ S.C. Code Ann. § 58-40-20(G)(1).

1 paid to these NEM customers with no corresponding benefit to the overall power
2 system is simply inconsistent with those provisions—particularly since such a
3 modification would necessarily result in an increased cost-shift running to non-
4 NEM customers, which is also contrary to another stated principle within Act 62
5 related to Solar Choice.

6 Second, even if the Commission did make such a modification, it would have
7 very little marginal benefit in helping DESC achieve its carbon goals. As I described
8 above, NEM is simply one tool in a broader, integrated toolset that DESC is utilizing
9 to ensure that it is able to meet its sustainability goals while ensuring that such tools
10 are in the best interests of the ratepayers. Although DESC recognizes that rooftop
11 solar generation can be a resource in creating a net-zero emissions future and
12 supports its deployment on the DESC system, it is not the only avenue to meeting
13 its goals and thus there is no reason to subsidize this program in clear contradiction
14 of Act 62.

15
16 **Q. IF THE COMMISSION WERE TO APPROVE CERTAIN PORTIONS OF**
17 **THE SOLAR CHOICE TARIFFS, BUT REQUIRE DESC TO CHANGE**
18 **OTHER PORTIONS, WOULD THE COST-SHIFT AND IMPACT TO LOW-**
19 **INCOME CUSTOMERS REMAIN MITIGATED TO THE EXTENT YOU**
20 **HAVE TESTIFIED?**

1 A. No. As described in greater detail by DESC Witness Everett, the Solar
2 Choice Tariffs incorporate a variety of ratemaking tools that work in conjunction to
3 embody the principles within Act 62 and achieve the General Assembly's ultimate
4 intent. However, the relationship among these ratemaking tools is interdependent
5 and one ratemaking tool cannot be modified in isolation. Any such modification
6 would fundamentally change the net effect of the Solar Choice Tariffs and likely
7 miss the mark in fulfilling the intent of the General Assembly.

8
9 **Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?**

10 A. Yes.

NO.	Name	Definition	Calculation Methodology
Generation Related Cost Components			
1	Avoided Energy Costs	“Increase/reduction in variable costs to the Utility from conventional energy sources i.e. fuel use and power plant operations, associated with the adoption of NEM”	“Component is the marginal value of energy derived from production simulation runs per the Utility’s most recent Integrated Resource Planning (“IRP”) study and/or Public Utility Regulatory Policy Act (“PURPA”) Avoided Cost formulation.”
2	Avoided Capacity Costs	“Increase/reduction in the fixed costs to the Utility of building and maintaining new conventional generation resources associated with the adoption of NEM.”	“Component is the forecast of marginal capacity costs derived from the Utility’s most recent IRP and/or PURPA Avoided Cost formulation. These capacity costs should be adjusted for the appropriate energy losses.”
3	Ancillary Services	“Increase/reduction of the costs of services for the Utility such as operating reserves, voltage control, and frequency regulation needed for grid stability associated with the adoption of NEM.”	“Component includes the increase/decrease in the cost of each Utility’s providing of procurement of services, whether services were based on variable load requirements and/or based on fixed/static requirement, i.e., determined by an N-1 contingency. It also includes the cost of future NEM technologies like “smart inverters” if such technologies can provide services like VAR support, etc.”
4	Avoided Criteria Pollutants	“Increase/reduction of SO _x , NO _x , and PM ₁₀ emission costs to the Utility due to increase/reduction in production from the Utility’s marginal generation resources associated with the adoption of NEM generation if not already included in the Avoided Energy component.”	“The costs of these criteria pollutants are most likely already accounted for in the Avoided Energy Component, but, if not, they should be accounted for separately. The Avoided Energy component must specify if these are included.”
5	Avoided CO ₂ Emission Cost	“Increase/reduction of CO ₂ emissions due to increase/reduction in production from each Utility’s marginal generating resources associated with the adoption of NEM generation.”	“The cost of CO ₂ emissions may be included in the Avoided Energy Component, but, if not, they should be accounted for separately. A zero monetary value will be used until state or federal laws or regulations result in an avoidable cost on Utility system for these emissions.”
6	Fuel Hedge	“Increase/reduction in administrative costs to the Utility of locking in future price of fuel associated with adoption of NEM.”	“Component includes the increase/decrease in administrative costs of any Utility’s current fuel hedging program as a result of NEM adoption and the cost or benefit associated with serving a portion of its load with a resource that has less volatility due to fuel costs than certain fossil fuels. This value does not

			include commodity gains or losses and may currently be zero.”
7	Environmental Costs	“Increase/reduction of environmental compliance and/or system costs to the Utility.”	“The environmental compliance and/or Utility system costs might be accounted for in the Avoided Energy component, but, if not, should be accounted for separately. The Avoided Energy component must specify if these are included. These environmental compliance and/or Utility system costs must be quantifiable and not based on estimates.”
Transmission and Distribution			
8	T & D Capacity	“Increase/reduction of costs to the Utility associated with the expanding, replacing, and/or upgrading transmission and/or distribution energy capacity associated with the adoption of NEM.”	“Marginal T&D distribution costs will need to be determined to expand, replace, and/or upgrade capacity on each Utility’s system. Due to the nature of NEM generation, this analysis will be highly locational as some distribution feeders may or may not be aligned with the NEM generation profile although they may be more aligned with the transmission system profile/peak. These capacity costs should be adjusted for the appropriate energy losses.”
9	Line Losses	“Increase/reduction of electricity losses by the Utility from the points of generation to the points of delivery associated with the adoption of NEM.”	“Component is the generation, transmission, and distribution loss factors from either the Utility’s most recent cost of service study or its approved Tariffs. Average loss factors are more readily available, but marginal loss data is more appropriate and should be used when available.”
Utility Integration & Interconnection Costs			
10	Utility Integration & Interconnection Costs	“Increase/reduction of costs borne by each Utility to interconnect and integrate NEM.”	“Costs can be determined most easily by detailed studies and/or literature reviews that have examined the costs of integration and interconnection associated with the adoption of NEM. Appropriate levels of photovoltaic penetration increases in South Carolina should be included.”